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ABSTRACT

The purpose of this bibliography is to present a range of sources that will provide guidelines to both theoretical and applied aspects of benefit-cost analysis. The bibliography is divided into two principal sections, with subsections and categories in each. The first section, entitled Background, provides introductory and conceptual references to the technique. The first subsection (Benefit-Cost Analysis) has categories of introduction, background, discounting and interest rates, and further considerations. The following subsection (Cost-Effectiveness Analysis) has categories of introduction and application. The second, or Applications section, includes six subsections covering problems of interest to planners: (1) regional planning and resources management, (2) urban, (3) transportation, (4) human resources, (5) recreation, and (6) water. (Author/MLF)

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BENEFIT - COST ANALYSIS: A Select Bibliography

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BENEFIT-COST ANALYSIS:

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PREFACE

The purpose of this bibliography is to present a range of sources which will provide guidelines to both theoretical and applied aspects of benefit-cost analysis. In this context, benefit-cost analysis is defined as a technique in which the costs and benefits of different projects and/or programs are compared. The purpose of such comparison is to facilitate ranking and selection of a range of alternatives, whether they are dams, highways or retraining programs.

There are at least two ways that a bibliography on benefit-cost analysis might be structured. One approach would be to assign references to various conceptual or problematic categories. For example, references might be listed under the following types of headings: prices, economic life, interest rates, discount procedures, secondary effects, intangibles. A second approach, perhaps

more pragmatic, would be to list references under topical headings, such as urban, transportation, or recreation.

Both approaches raise problems. First, both methods result in categories which may not be mutually exclusive. For example, does a study of traffic and roads in a specific city get listed under an urban or transportation heading? The same study may also touch upon problems of handling interest rates and measurement of intangibles. Second, the approach outlined initially may have limitations for the person unfamiliar with benefit-cost analysis, and who is looking for the manner in which it has been applied in problems similar to his own. Conversely, the latter approach may not point the way to specific problems associated with the technique. It may be answers to problems such as discount rates or economic life that the researcher is seeking.

With the above in mind, this bibliography is divided into two principal sections, with subsections and categories in each. The first section, entitled Background, provides introductory and conceptual references to the technique. The first subsection (Benefit-Cost Analysis) includes a number of general references to the technique as well as papers discussing its opportunities and limitations. Two categories (Introduction; Background) contain references ranging from general discussion of the technique to the treatment of problems and questions in more detail. The remaining categories (Discounting and Interest Rates; Further Considerations) consider very specific theoretical and operational problems. By providing such references at the outset, it is hoped

that the reader looking for either introductory material or material discussing specific questions will be accommodated.

The following subsection (Cost-Effectiveness Analysis) is included in an attempt to eliminate some of the confusion between the two terms "benefit-cost analysis" and "cost-effectiveness analysis". It is suggested here that cost-effectiveness analysis is conceptually similar to what is often referred to as operations research or systems analysis. In other words, these terms refer to an analytical procedure which attempts to assist decision-makers in identifying a preferred choice from a range of alternatives. To realize this end, cost-effectiveness attempts to model a problem, and then apply either one or some combination of techniques to evaluate alternatives. Benefit-cost analysis would be one such technique, along with others such as simulation, gaming linear programming and statistical analysis. Thus, the two categories (Introduction and Applications) are included with the thought that their references mught help to place benefit-cost analysis in perspective. The references in the Applications Category of cost-effectiveness analysis range from agriculture, air pollution, public health, education and water supply to urban transportation.

The second, or Applications section, includes six subsections covering problems of interest to planners. The subsection entitled Regional Planning and Resources Management covers a variety of topics ranging from evaluation of local government expenditures and land assembly programs, to regional development projects, to specific resource issues such as agriculture, fisheries and energy.

The second subsection (Urban) focuses upon the application of benefit-cost analysis in general urban planning as well as to renewal and services. Under the latter categories are found studies ranging in coverage from slum clearance to provision of waste collection, libraries and schools. The following subsection (Transportation) illustrates how the technique has been applied to problems ranging from subways to highways to air transport. Some of the transportation references are closely related to urban problems.

The subsection entitled Human Resources is included for several reasons. The planner by necessity must become more concerned with vocational and retraining programs, as well as social welfare, health and related topics if comprehensive regional planning is to be realized. Furthermore, the topics falling into this subsection dramatically emphasize the difficulties of measuring intangible factors or variables. For example, what are the benefits, primary, secondary and intangible, related to retraining or social welfare programs? Can they be identified, and, if so, can they be quantified? If not, how might benefit-cost analysis be used, or abused, in the context of such problems?

Recreation, the title for the fifth subsection, further illustrates the difficulties of measuring intangibles in benefit-cost studies. The first category presents a number of studies in which benefit-cost analysis has been included explicitly in recreation research. The second category, on the other hand, contains references showing some of the different methods which have been used in an attempt to measure, and place a value upon, recreation.

The final subsection (Water) is perhaps an appropriate one with which to conclude since many would argue that benefit-cost analysis was developed in Water Studies. The first category includes some of the key or benchmark references in the development of the technique for water research. The subsequent categories (Flood Control; Irrigation; Pollution; Supply) indicate how the technique has been applied in North America and abroad.

It is hoped that the second section (Applications) in combination with the first section (Background) will provide both an overview and some illustrations of benefit-cost analysis in theory and practice as represented by the literature from 1945 to the present, with emphasis upon the period 1960 to 1970.

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A. BACKGROUND

1. Benefit-Cost Analysis

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B. APPLICATIONS

1. Regional Planning and Resources Management

(1) Evaluation of Programs and Projects

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